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### **Paper No. 29: Exploiting Database Management Systems in Shipbuilding**

U.S. DEPARTMENT OF THE NAVY  
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**EXPLOITING DBMS IN SHIPBUILDING**  
**Special Interest Group Meeting Report**

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SPECIAL INTEREST GROUP MEETING REPORT:

Exploiting Database Management Systems in Shipbuilding

O.J. Wolanyk

The thought occurred to me while sitting here listening to these excellent presentations that those of you who were in the SIG session yesterday concerned with defining data processing problems missed our session which was involved in solving them.

Our basic discussion was on database administration, starting out by defining data as a corporate resource that should be managed, mainly because it costs money. It costs money to manipulate it, it costs money if you cannot access it. We talked about today's environment in data processing as being fragmented, characterized by the lack of controls - the usual syndrome of everybody wanting to own their own data.

We raised the question of why should a corporation consider their own database. The main reason, of course, is to gain control over the data and therefore improve the accuracy and the timeliness of the data. That is, to be able to retrieve information and know that it is the most accurate and up to date available. Other reasons are to reduce data redundancy and thereby permit sharing of data among applications and allow data usage restrictions to be applied effectively. Knowing where the data is located, or that it resides in fewer locations, makes it easier to control that data. Finally of course, maintenance of data integrity and data independence issues can be addressed. By data independence issues we mean the ability to change a program or to change a database and not have to change the other.

We discussed data administration tools that are available to us. Specifically, the database management system and the data dictionary. A data dictionary is a central repository of information containing standardized descriptions of data and other components of information systems. The theory being that if we can document existing systems we will be in good position to take advantage of upcoming technology, instead of doing the usual routine of trying to figure out where we are today. The objectives of the data dictionary itself, are to prevent unplanned redundancy and inconsistency in data, to know where the data are and to take advantage of it rather than recreating it each time. More importantly, through the data dictionary facilities a reduction in application development cost and time can be realized. Applications can be finished sooner, because they can be started sooner; a reduction in application modification costs and time can be realized.

We all know program maintenance is the most significant part of most data processing budgets. We can support the establishment and enforcement of database standards again through the centralized control the data dictionary capability will give us. Furthermore, we will have a vehicle that will facilitate communication between the using community and data processing. The questions that the data dictionary can answer for us, that we need to know at system development time include: What data are available in the corporation? Where is the data located? How is it structured? Who is responsible for it? Who are the users and where are they located? And what are the reports and programs which use that data? If we have that information at hand then changes in the corporation's way of doing business and the way of doing manufacturing can quickly be reflected in changes to the underlying data processing systems that support those functions.

Two major conclusions were arrived at during the session. First, there are no database management system packages commercially available today that really suit both the commercial and the manufacturing side of an organization as well as the engineering side. However, there is a commonality between the two application **areas** that should be tied together, perhaps, through interface systems. The second conclusion is that the effort involved in the implementation of a data dictionary is worth it to put the shipyard in position to take advantage of new technology.



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